



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/805,868

03/14/2001

Daisuke Hama

FUSA 18.452

3397

26304

7590

11/17/2004

KATTEN MUCHIN ZAVIS ROSENMAN  
575 MADISON AVENUE  
NEW YORK, NY 10022-2585

EXAMINER

NGUYEN, STEVEN H D

ART UNIT

PAPER NUMBER

2665

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/805,868

Applicant(s)

HAMA, DAISUKE

Examiner

Steven HD Nguyen

Art Unit

2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3, 5.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-6 and 8-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Wakayama (US 20010049739).

Regarding claim 1, Wakayama discloses (Figs 1-20 and Pages 1-7) a network for forming a VPN on a shared network and communicating via the VPN (Virtual LAN A), comprising a core network of the VPN formed by a label switching network (Fig 1, Ref 5); access networks formed by VLANs to access said core network (Fig1, Ref VLANs); and interface devices (Fig 1, Ref 1-1 and 1-2) provided at edges of the label switching network for interfacing said label switching network and the VLANs.

Regarding claim 2, Wakayama discloses (Figs 1-20 and Pages 1-7) said interface devices are edge routers provided at edges of an MPLS network serving as said label switching network, said edge routers including: a transmit-side edge router for converting a packet, which is sent from a VLAN, to an MPLS packet and transmitting the packet to the MPLS network; and a receive-side edge router for converting the MPLS packet, which has been received from the MPLS network, to a VLAN packet and directing the VLAN packet to a VLAN that belongs to the same VPN as that of a VLAN on the transmit side (Fig 7 discloses a method and device such

Art Unit: 2665

router for encapsulating the received packet into MPLS packet and decapsulating the MPLS packet at the receiving device for forwarding to the destination, See Fig 8-20).

Regarding claim 3, Wakayama discloses (Figs 1-20 and Pages 1-7) each of said edge routers has a first table storing correspondence between VLAN identifiers (VIDs) contained in VLAN packets and VPN labels contained in MPLS packets; said transmit-side edge router finds a VPN label, which corresponds to a VLAN identifier (VID) of a VLAN packet, from said first table, generates an MPLS packet having this VPN label and sends this MPLS packet to the MPLS network; and said receive-side edge router finds a VID, which corresponds to a VPN label contained in an MPLS packet received from the MPLS network, from said first table, generates a VLAN packet having this VID and sends this VLAN packet to a VLAN indicated by this VID (Fig 8-20 discloses a table includes VLAN ID, MPLS label and VPN label, "VLAN A", see Fig 19-20 and Fig 12, a table which includes the routing information).

Regarding claim 4, Wakayama discloses (Figs 1-20 and Pages 1-7) each of said edge routers includes: a route decision unit for deciding a route which directs an MPLS packet to a receive-side edge router; and a second table for storing forwarding labels, which specify routes decided by said route decision unit, mapped to addresses of receive-side edge routers; said transmit-side edge router finds a receive-side edge router corresponding to a destination of a packet, finds a forwarding label, which corresponds to the receive-side edge router, from said second table, generates an MPLS packet that contains the VPN label and the forwarding label and sends this MPLS packet to the MPLS network (Fig 8-20 discloses a table includes VLAN ID, MPLS label and VPN label, VLAN A, see Fig 19-20 and Fig 12, a table which includes the routing information for determining a route between the routers for generating a MPLS packet

Art Unit: 2665

between the routers by retrieving the MPLS label in order to encapsulate the VLAN packet before forwarding it onto MPLS network).

Regarding claim 5, Wakayama discloses (Figs 1-20 and Pages 1-7) an edge router which constructs the VPN and is connected to a VLAN sends another edge router an address set composed of an address of a VLAN-compatible device connected to the first-mentioned edge router and the address of this edge router, and each edge router creates a routing table based upon the received information; and said transmit-side edge router finds a receive-side edge router, which corresponds to the destination of the packet, from said routing table (Page 5, Sec 86-87).

Regarding claim 6, Wakayama inherently discloses (Figs 1-20 and Pages 1-7) wherein an edge router transmits no address information to an edge router to which is connected a VLAN that has been prohibited from communicating.

Regarding claim 8, Wakayama discloses (Figs 1-20 and Pages 1-7) said transmit-side edge router inserts user priority information, which is contained in a tag of a VLAN packet, into a label of an MPLS packet as IP precedence information of the MPLS network, and said receive-side edge router inserts IP precedence information, which is contained in the label of an MPLS packet, into the tag of a VLAN packet as user priority information of the VLAN (Fig 17-18, the user priority of the received packet is mapped with MPLS priority packet).

Regarding claim 9, Wakayama discloses (Figs 1-20 and Pages 1-7) an edge router (Fig 7, Ref 3-1) in a network for forming a VPN on a shared network, forming a core network of the VPN by an MPLS network and forming an access network, which is for accessing the core network, by a VLAN, wherein a transmit-side edge router comprises means for storing a corresponding relationship between VLAN identifiers (VIDS) and VPN labels serving as VPN

Art Unit: 2665

identifiers (Fig 12, Ref 123); and an MPLS packet generating unit for finding a VPN label corresponding to a VID, which is contained in a packet sent from the VLAN, using the corresponding relationship, generating an MPLS packet that includes this VPN label and sending this MPLS packet to the MPLS network (Figs 13-19 for mapping between VLAN ID, VLAN #A “VPN label” and MPLS label for generating a MPLS packet or de-assembly a MPLS packet).

Regarding claim 10, Wakayama discloses (Figs 1-20 and Pages 1-7) a route decision unit for deciding a route which directs an MPLS packet to a receiver-side edge router; and a forwarding label storage unit for storing forwarding labels, which specify routes decided by said route decision unit, mapped to addresses of receive-side edge routers; wherein said MPLS packet generating unit finds a receive-side edge router corresponding to a destination of a packet, finds a forwarding label, which corresponds to the receive-side edge router, from said forwarding label storage unit, and generates an MPLS packet that contains the VPN label and the forwarding label (Fig 8-20 discloses a table includes VLAN ID, MPLS label and VPN label “VLAN A”, see Fig 19-20 and Fig 12, a table which includes the routing information for determining a route between the routers for generating a MPLS packet between the routers by retrieving the MPLS label in order to encapsulate the VLAN packet before forwarding it onto MPLS network).

Regarding claim 11, Wakayama discloses (Figs 1-20 and Pages 1-7) said MPLS packet generating unit receives from edge routers which are connected to other VLANs constituting said VPN, information comprising a combination of addresses of these edge routers and addresses of VLAN-compatible devices connected to these edge routers, creates a routing table based upon said received information and finds said receive-side edge router, which corresponds to the destination of the packet, from said routing table (Page 5, Sec 86-87).

Art Unit: 2665

Regarding claim 12, Wakayama discloses (Figs 1-20 and Pages 1-7) an edge router in a network for forming a VPN on a shared network, forming a core network of the VPN by an MPLS network and forming an access network, which is for accessing the core network, by a VLAN, wherein a receive-side edge router comprises: a table for storing correspondence between VLAN identifiers (VIDs) and VPN labels serving as VPN identifiers; and a VLAN packet generating unit for finding a VID corresponding to a VPN label, which is contained in a packet that enters from the MPLS network, using said table, generating a VLAN packet that includes this VID, and sending this VLAN packet to a VLAN (Figs 18-19 and Fig 12, Ref 123 is a table includes the mapping information such as MPLS label, VLAN #A "VPN label" and VLAN ID for using to find a route to forwarding the packet to each destination address).

Regarding claim 13, Wakayama discloses (Figs 1-20 and Pages 1-7) an edge router in a network for forming a VPN on a shared network, forming a core network of the VPN by an MPLS network and forming an access network, which is for accessing the core network, by a VLAN, comprising: a table for storing correspondence between VLAN identifiers (VIDs) and VPN labels serving as VPN identifiers; an MPLS packet generating unit for finding a VPN label corresponding to a VID, which is contained in a packet that enters from the VLAN, using said table, generating an MPLS packet that includes this VPN label and sending this MPLS packet to the MPLS network; and a VLAN packet generating unit for finding a VID corresponding to a VPN label, which is contained in a packet that enters from the MPLS network, using said table, generating a VLAN packet that includes this VID, and sending this VLAN packet to a VLAN (Figs 18-19 and Fig 12, Ref 123 is a table includes the mapping information such as MPLS label, VLAN #A "VPN label" and VLAN ID for generating MPLS packet or VLAN packet).

Regarding claim 14, Wakayama discloses (Figs 1-20 and Pages 1-7) comprising a route decision unit for deciding a route which directs an MPLS packet to a receiver-side edge router; and a forwarding label storage unit for storing forwarding labels, which specify routes decided by said route decision unit, mapped to addresses of receive-side edge routers; wherein said MPLS packet generating unit finds a receive-side edge router corresponding to a destination of a packet, finds a forwarding label, which corresponds to the receive-side edge router, from said forwarding label storage unit, and generates an MPLS packet that contains the VPN label and the forwarding label (Fig 8-20 discloses a table includes VLAN ID, MPLS label and VPN label, "VLAN A", see Fig 19-20 and Fig 12, a table which includes the routing information for determining a route between the routers for generating a MPLS packet between the routers by retrieving the MPLS label in order to encapsulate the VLAN packet before forwarding it onto MPLS network).

Regarding claim 15, Wakayama discloses (Figs 1-20 and Pages 1-7) said MPLS packet generating unit receives from edge routers which are connected to other VLANs constituting said VPN, information comprising a combination of addresses of these edge routers and addresses of VLAN-compatible devices connected to these edge routers, creates a routing table based upon said received information and finds said receive-side edge router, which corresponds to the destination of the packet, from said routing table (Page 5, Sec 86-87).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:



Art Unit: 2665

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wakayama (US 20010049739).

Regarding claim 7, Wakayama fails to disclose said transmit-side edge router discards a VLAN packet having a VID value that is greater than a set value. Since, Wakayama discloses a method for discarding the packet that does not belong to it (Page 3, Sec 55). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to discard the packet that has different VLAN ID at the transmitting side edge router in order to improve the throughput of the network.

5. Claims 1-7 and 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rekhter (USP 6339595) in view of Bruns (USP 6757298).

Rekhter discloses (Figs 1-36 and col. 1, lines 8 to col. 70, lines 15) a network for forming a VPN on a shared network and communicating via the VPN (Fig 1, VPN), comprising a core network of the VPN formed by a label switching network (Fig 1, Ref PE2, P2, P1 and PE1); interface devices, provided at edges of the label switching network for interfacing said label switching network and the VLAN, comprising a transmit-side edge router for converting a packet, which is sent from a VLAN, to an MPLS packet and transmitting the packet to the MPLS network; and a receive-side edge router for converting the MPLS packet, which has been received from the MPLS network, to a VLAN packet and directing the VLAN packet to a VLAN that belongs to the same VPN as that of a VLAN on the transmit side (Col. 43, lines 10-15); a table that contains a VPN-ID "VPN label" and MPLS label "tag such VPI/VCI" for using to

Art Unit: 2665

generating MPLS packet (See col. 22, lines 42-49) and a route decision unit for deciding a route which directs an MPLS packet to a receive-side edge router; and a second table for storing forwarding labels, which specify routes decided by said route decision unit, mapped to addresses of receive-side edge routers; said transmit-side edge router finds a receive-side edge router corresponding to a destination of a packet, finds a forwarding label, which corresponds to the receive-side edge router, from said second table, generates an MPLS packet that contains the VPN label and the forwarding label and sends this MPLS packet to the MPLS network (Col. 9, lines 9 to col. 12, lines 20 for mapping between VPN label and MPLS label in order to generate a MPLS packet); an edge router which constructs the VPN and is connected to a VLAN sends another edge router an address set composed of an address of a VLAN-compatible device connected to the first-mentioned edge router and the address of this edge router, and each edge router creates a routing table based upon the received information; and said transmit-side edge router finds a receive-side edge router, which corresponds to the destination of the packet, from said routing table (col. 11, lines 18-44 discloses the routing information are exchanged between the routers in order to setup a routing table) and an edge router transmits no address information to an edge router to which is connected a VLAN that has been prohibited from communicating (implicit disclosed) and discard the packet if VLAN ID is different from the received node (implicit disclosed). However, Rekhter fails to disclose access networks formed by VLANs to access said core network and a table containing VLAN ID and VPN label for generating a VLAN frame. In the same field of endeavor, Burns discloses access networks formed by VLANs to access said core network (Figs 3 and 4 include VLANs) and a table for using to map between VLAN ID and tag such VPI/VCID (See col. 4, lines 8-40).

Art Unit: 2665

Since, Rekhter suggests a MPLS network for carrying the MPLS packet that contain VLAN packet. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a system and method for routing a packet between the VLAN via a backbone network by mapping between VLAN ID and Tag as disclosed by Burns's system into a method and system of Rekhter. The motivation would have been to improve the throughput of the router.

### *Conclusion*

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sakamoto (USP 6633571) discloses a method and system for routing packets between the LAN via a MPLS network.

Luciani (U 20030088699) discloses a method and system for routing packets between the LAN via a MPLS network.

Miki (USP 6771662) discloses a method and system for routing packets between the LAN via a MPLS network.

Casey (USP 6205488) discloses a method and system for routing packets between the LAN via a MPLS network.

Banni (USP 6647428) discloses a method and system for routing packets between the LANs or a MPLS packet via optical network.

Walrand (USP 6674760) discloses a method and system for routing packets between the LANs via backbone network by using VLAN or MPLS.

Art Unit: 2665

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven HD Nguyen whose telephone number is (571) 272-3159. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to be 'Steven HD Nguyen', written in a cursive style with a large loop at the end.

Steven HD Nguyen  
Primary Examiner  
Art Unit 2665  
11/8/04